

REMARKS

Status of the Application

In the Final Office Action of April 30, 2003, claims 13, 15-19, 25 and 26 were rejected, and claims 14 and 20-24 were objected to. In the Advisory Action of September 17, 2003, the Examiner refused to enter the amendments submitted in response to the April 30, 2003 Final Office Action. In the present Amendment, claim 13 has been amended so that claims 13-26 are pending.

Applicants have further defined the claimed coating composition of claim 13 as being an "electrically insulative" coating composition. Support for this amendment can be found throughout pages 1-2 and at page 11, lines 16-24.

Applicants have also further defined the element-oxygen network of their claimed coating composition as involving a chemical reaction between either the reactive particles of component A and the binders of component B, or just reactive particles of component A that have at least radicals of reactive resin components as function R₁ so as to form an inorganic-organic-oxygen network after the coating is applied and cured. Support for this amendment can be derived from the description of the components of the claimed coating composition as set forth on pages 4-9.

Applicants have also further defined the inorganic-organic-oxygen network by indicating that when the reactive function R₁ comprises radicals selected from the group consisting of metal acid esters, NCO, urethane groups, epoxide groups, epoxy, carboxylic acid anhydride, C=C double bond systems, OH, alcohols bound by way of oxygen, alcohols bound by way of esters, alcohols bound by way of ethers, chelating agents, COOH, NH₂, and NHR₄, the formation of the inorganic-organic-oxygen network requires component B to be present. Support for this amendment can be found at page 10, second paragraph, and in Examples 2-5. No new matter has been added.

Advisory Action of September 19, 2003

The Examiner further noted in the Advisory Action that the new limitations added to independent claim 13, "including those to render the coating electrically conductive and those that further limit the reactive particles", "would require further consideration of the prior art by the Examiner." (emphasis added). Applicants, however, would like to point out they added and electrically insulative, NOT

APPLICATION NO: 09/913,999
DOCKET NO: FA-1022

conductive, limitation to independent claim 13. As the Examiner will note by referring to an automotive dictionary located at <http://100megsfree4.com/dictionary/car-dici.htm>, "insulator" is defined as "[a] unit made of a material that will not conduct electricity. The electricity in a copper wire covered with a plastic sleeve (insulator) cannot penetrate the sleeve", "insulate" is defined as "[t]o cover with non-conducting material, so as to prevent the transmission of heat, electricity, or sound", and "insulation" is defined as "(1) Any material which does not conduct electricity. It is used to prevent the flow or leakage of an electrical conductor. (2) Any material which does not readily conduct heat. Used to keep heat or cold out of something ..., and (3) The process of insulating."

To the contrary, the term "conductivity" is defined as "[t]he ability of something to conduct electricity", and the term "electrical conductivity" is defined as "[t]he ability of a material to conduct electricity." Based on the definitions set forth hereinabove, Applicants want to point out that the terms "conductive" and "insulative" are not analogous terms and in fact have completely different meanings. Applicants respectfully request that the Examiner examine the application in accordance with the meanings of these terms of art.

In addition, the Examiner indicated that the "amendment to claim 13 raises the question of whether the applicant intends to claim a cured coating or a coating capable of being cured." The Examiner claims that "[t]he limitation 'whereby said element-oxygen network becomes an inorganic-organic-oxygen network after the coating composition is applied and cured' renders the claim indefinite. As a result the Examiner wants to know '[i]n what state of cure or reactivity ... the applicant intend[s] the claimed coating to be'. Applicants have revised the previously submitted claims, thereby rendering the Examiner's concerns moot.

Objection to Claims 14 and 20-24

Claims 14 and 20-24 have been objected to for depending from a rejected base claim. The Examiner, however, indicates that these claims would be allowable if rewritten in independent form including all of the limitations of the base claims and any intervening claims. The Examiner takes the position that claims 14 and 20-24 would be allowable if rewritten because 1) the thermal curing steps of Applicants' claimed process are novel and unobvious over the prior art, and 2) the specific

reactive particles claimed by Applicants in claim 14 would produce a coating composition that is novel and nonobvious over the prior art. More specifically, the Examiner asserts that the "closest prior art, Vassiliou, discloses a coating composition comprising colloidal silica, a fluorocarbon polymer, and a number of additives", but "does not mention the curing of the fluorocarbon composition at an elevated temperature, nor does the reference mention the use of crosslinking agents." The Examiner further explains that Vassiliou "does not suggest the applicant's R₁ radicals of claim 14."

The Applicants, however, submit that in light of the comments contained herein below claim 13 is neither rendered obvious, nor anticipated by Vassiliou or Majumdar. Accordingly, Applicants submit that claim 13 is in condition for allowance thereby obviating the Examiner's objections as to claims 14 and 20-24. Withdrawal of these objections is respectfully requested.

Rejections Under 35 U.S.C § 102(e)

Claims 13, 15-18 and 25 stand rejected under 35 U.S.C § 102(e) as being anticipated by Majumdar (U.S. Patent No. 6,171,769 B1). The Examiner asserts that Majumdar discloses a "photographic element comprising an antistatic coating layer on a substrate, where the antistatic layer comprises a colloidal silica, a polymeric binder, and an electrically conductive element...." The Examiner takes the position that the photographic element, as a result of containing an electrically conductive element, is itself an electrical conductor. The Examiner also asserts that the preferred colloidal silica is Ludox® AM, which is a silica modified to contain hydroxyl groups, and that the silica is present as a silica-oxygen network in the form of 5-25 nm particles. Finally, the Examiner asserts that a "wide range for weight ratios of silica to binder, where additives can also be included" are disclosed. In accordance with these assertions, the Examiner takes the position that one of ordinary skill in the art would envision both the Applicants' claimed weight ratios of the components, and the hydroxyl groups being present in the applicant's range of "up to 98 wt.%".

The Examiner further asserts that claims 15-16 of Applicants' claimed invention limit R₃ and R₄ "without limiting the reactive particles to contain additional radicals R₃ and R₄." The Examiner claims that Majumdar does not contain R₃ and R₄ radicals because the silica particles of Majumdar do not have additional functionality,

and therefore Majumdar anticipates the present invention, despite the R₃ and R₄ limitations of claims 15-16.

Applicants, however, respectfully disagree with the Examiner's stated position, and respectfully assert that the electrically conductive coating composition disclosed by Majumdar does not anticipate the electrically insulative coating composition claimed by Applicants. In fact, Applicants have further defined their claimed invention by inserting a whereby clause to indicate that their claimed coating composition is electrically insulative. Indeed, although Applicants disagree with the Examiner's assertion that coating photographic paper with an antistatic layer containing a conductive agent causes the photographic paper to be transformed into an electrical conductor, Applicants assert that the Examiner's characterization of the photographic paper as an electrical conductor definitively indicates that Majumdar does not contain the electrically insulative limitation of Applicants' claimed coating composition. As a result, Majumdar does not anticipate Applicants' claimed coating composition because Majumdar fails to disclose every limitation of the claimed coating composition.

Moreover, Majumdar's disclosure fails to put the public in possession of Applicants' claimed electrically insulative coating composition before Applicants' date of invention, and therefore is not enabling. As stated in Section 2121.01 of the MPEP "[s]uch possession is effected if one of ordinary skill in the art could have combined the publication's description of the invention with his [or her] own knowledge to make the claimed invention." The disclosure of Majumdar, however, indicates that a conducting agent must be added to his coating composition in order for the photographic paper backing to possess the antistatic properties that are desired. If, however, an electrically conductive agent, such as those disclosed in Majumdar, were to be added to Applicants' claimed electrically insulative coating composition, the insulative properties of Applicants' claimed invention would be completely destroyed. As nothing in the disclosure of Majumdar indicates that leaving out the electrically conductive agent of Majumdar would have resulted in a coating that could be successfully used to insulate wire, and a person of ordinary skill in the art would not have been able to determine based on his or her knowledge at the time the invention was made, that leaving out the electrically conductive agent of Majumdar would successfully produce an electrically insulative coating having an

increased partial discharge resistance, e.g., under the effect of high voltages or pulse shaped voltages, the public was not in possession of Applicants' claimed electrically insulative, and therefore electrically nonconductive, coating composition. As a result, the disclosure of Majumdar is not enabling.

In sum, Majumdar does not anticipate Applicants' claimed invention because 1) Majumdar neither discloses, nor contains the electrically insulative limitation of Applicants' claimed invention, and 2) the disclosure of Majumdar failed to put the public in possession of Applicants' electrically insulative, and therefore electrically nonconductive, coating composition prior to Applicants' date of invention, and therefore was not an enabling disclosure. Accordingly, Applicants' respectfully request that the Examiner withdraw this rejection.

Rejections Under 35 U.S.C § 102(b)

Claims 13, 15-19 and 25-26 stand rejected under 35 U.S.C § 102(b) as being anticipated by Vassiliou (U.S. Patent No. 3,986,993) as evidenced by Majumdar (U.S. Patent No. 6,171,769 B1). The Examiner asserts that Vassiliou discloses "a coating composition comprising a colloidal silica, a fluorocarbon polymer, and a number of additives", wherein the colloidal silica used is preferably Ludox® AM, and is preferably comprised of particles ranging in size from 7 to 25 millimicrons. The Examiner further asserts that in Majumdar Ludox AM is referred to "as a silica modified to contain hydroxyl groups."

The Examiner also claims that "[c]omposition A shows ~31wt.% colloidal silica, ~46 wt.% of polymer binder dispersion, and ~23 wt.% of additives or solvents." In view of the disclosures in Majumdar regarding surface modification of Ludox® AM silica particles, the Examiner takes the position that one of ordinary skill in the art would envision hydroxyl groups being present in the applicant's range of "up to 98 wt.%". The Examiner further claims that because the coatings prepared according to Vassiliou are intended to coat metal substrates, Vassiliou is in effect "providing coatings for electrically conductive substrates".

The Examiner further asserts the claims 15-16 of Applicants' invention limit R3 and R4 "without limiting the reactive particles to contain additional radicals R3 and R4." The Examiner asserts that as "the further limitations of each additional radical provide no patentable weight over the prior art", the absence of R3 and R4 from Vassiliou would not render Applicants' claimed invention novel, and therefore

APPLICATION NO: 09/913,999
DOCKET NO: FA-1022

despite the R3 and R4 limitations of claims 15-16 Vassiliou also anticipates claims 15-16 of Applicants' claimed invention.

Finally, the Examiner alleges that Vassiliou anticipates claim 19 because it "teaches the addition of a silicone resin as an anti-mudcracking agent"

Applicants, however, respectfully assert that Vassiliou does not anticipate Applicants' claimed electrically insulative coating composition. Indeed, Applicants' have further defined their claimed invention by inserting a whereby clause to indicate that their claimed coating composition is electrically insulative. Vassiliou, however, neither contains, nor discloses the electrically insulative limitation that has been inserted by Applicants into independent claim 13.

To the contrary, the coating composition disclosed by Vassiliou is being used as a non-stick coating for coating cookware. (See column 1, lines 9-56 and column 5, lines 12-13). As cookware is being used to cook various food items, it is understood that heat is being conducted from through the surface of the cookware and to the particular food item. If the coating were to exhibit insulative properties the heat would not be conducted through the coating but would rather act to stop the heat from being transferred to the food item. Indeed, the coating composition disclosed by Vassiliou is a heat conductive, as opposed to disclosing an electrically insulative coating composition. As a result, Applicants' respectfully assert that Vassiliou does not anticipate Applicants electrically insulative coating composition because Vassiliou fails to disclose the electrically insulative limitation claimed by Applicants.

In addition, the element-oxygen network of Applicants' claimed coating composition is capable of forming an inorganic-organic-oxygen network upon being cured; whereas Vassiliou indicates that his fluorocarbon coating composition neither contains, nor forms the inorganic-organic-oxygen network formed by Applicants claimed element-oxygen network. Instead, Vassiliou indicates that the colloidal silica contained in his coating composition is used as an inorganic component in an inorganic-oxygen network, as opposed to being used in accordance with Applicants' claimed coating composition along with the other components contained therein so as to produce an inorganic-organic-oxygen network.

In fact, although the composition of Vassiliou contains fluorocarbon polymers and colloidal silica, it becomes readily apparent upon reviewing the disclosure of

Vassiliou that the fluorocarbon polymer and colloidal silica contained in Vassiliou's composition cannot form the organic-inorganic-oxygen network that is eventually formed by Applicants' claimed element-oxygen network. Indeed, Vassiliou expressly indicates at column 2, lines 3-12 that his fluorocarbon polymers are "completely substituted with fluorine atoms or a combination of fluorine atoms and chlorine atoms", thereby indicating that the fluorocarbon polymers of Vassiliou do not have any chemical groups available to react with the OH-groups of the colloidal silica. Moreover, Vassiliou further indicates at column 3, lines 1-19, that the fluorocarbon polymers and colloidal silica are contained in his coating composition as two separate colloidal species, and that these separately existing colloidal species form two separate networks, instead of the single organic-inorganic-oxygen network eventually formed by Applicants' claimed element-oxygen network. Additionally, Vassiliou further indicates at column 3, lines 1-19 that when the coating composition of Vassiliou is baked to form a finish, the network of the fluorocarbon polymers occupies the empty spaces of the network of the colloidal silica. Vassiliou never mentions that the fluorocarbon polymers and colloidal silica are, or can be, chemically bonded together to form the organic-inorganic-oxygen network eventually formed by the element-oxygen network claimed by Applicants. In contrast, Vassiliou expressly indicates that both of these components are contained either in the coating composition as separate and distinct colloidal species, or in the finish as separate and distinct networks.

As the fluorocarbon polymer and colloidal silica contained in Vassiliou's composition cannot form an organic-inorganic-oxygen network by chemically bonding to each other, Vassiliou's composition cannot possibly obtain the high partial discharge resistance that is obtained by the coating composition according to Applicants' claimed invention. More specifically, the organic and inorganic components of Applicants' claimed coating composition do not exist as separate entities, but instead are purposefully incorporated into Applicants claimed coating composition in such a way as to enable these inorganic and organic components to chemically bond to each other so as to form an organic-inorganic-oxygen network upon being cured. It is through the formation of this organic-inorganic-oxygen network that a coating composition having high partial discharge resistance is obtained by Applicants. As a result, even if a wire were to be coated with the

APPLICATION NO: 09/913,999
DOCKET NO: FA-1022

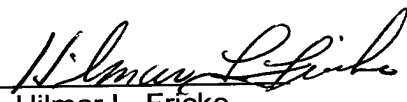
composition of Vassiliou, the high partial discharge resistance obtained by the wires coated with the composition according to Applicants' claimed invention would not be obtained.

As a result, Applicants' claimed coating composition is not anticipated by Vassiliou because 1) the electrically insulative limitation contained in Applicants' claimed coating composition is neither contained in, nor disclosed by Vassiliou, and 2) the organic-inorganic-oxygen network resulting from Applicants' claimed element-oxygen network is not capable of being formed via the components of the coating composition disclosed by Vassiliou. Accordingly, Applicants respectfully request that the Examiner withdraw this rejection.

Summary

In view of the foregoing amendments and remarks, Applicants submit that this application is in condition for allowance. In order to expedite disposition of this case, the Examiner is invited to contact Applicant's representative at the telephone number below to resolve any remaining issues. Should there be a fee due which is not accounted for, please charge such fee to Deposit Account No. 04-1928 (E.I. du Pont de Nemours and Company).

Respectfully Submitted,

By: 
Hilmar L. Fricke
Attorney for Applicants
Reg. No.: 40,979
Telephone: (302) 984-6282
Facsimile: (302) 658-1192

Dated: October 14, 2003